

**REMARKS**

Claims 27, 52, 54 and 56 have been objected to on the ground that they depend from cancelled claims. In response to this ground of objection, Claim 27 has been cancelled, while Claims 52, 54 and 56 have been amended to depend from Claim 33. Accordingly, reconsideration and withdrawal of this ground of objection are respectfully requested.

Claims 1-5, 11-20, 22-25, 27, 33-37, 42-50, 52-56, 58 and 64 have been rejected under 35 U.S.C. §103(a) as unpatentable over UK patent application GB 2 322 479 (hereinafter, GB '479) in view of Updegrave (U.S. Patent No. 6,233,376). In addition, Claims 6-10 and 38-41 have been rejected as unpatentable over the same two references and further in view of Allen et al (U.S. Patent No. 5,500,913). However, for the reasons set forth hereinafter, Applicants respectfully submit that all claims which remain of record in this application distinguish over the cited references, whether considered separately or in combination.

GB '479 has been discussed at length in Applicant's remarks submitted in connection with the amendment dated August 19, 2004. As noted there, this reference contains no mention of providing an optical processing means on a micro substrate embedded within a composite or of how to locate such a device,

as recited in independent Claims 1 and 33 as amended. This omission in the GB '479 is acknowledged in the Office Action at page 3, third full paragraph. In order to further emphasize this feature of the invention, Claims 1 and 33 have been amended to recite that the optical processing means are disposed on a "discrete" micro substrate embedded within the composite. Support for this amendment is found at page 17, lines 4 through 31, which disclose that the micro-substrate 92 is separately formed and machined, and is embedded at the time of the composite manufacture. In addition, Figure 6b of the drawings also clearly shows the micro substrate as a discrete component.

The missing feature in GB '479 (provision of the optical processing means on a discrete microsubstrate) is said to be remedied by the Updegrave reference. In particular, the Office Action refers to Column 3, lines 6-16 of Updegrave regarding this feature. Applicants have carefully reviewed the portion of the disclosure, which is set forth below in full:

"Referring to FIG. 1, circuit board 10 has a plurality of insulating layers 11 mounting electrically conductive strips 12 that may be arranged in patterns to transmit electrical power and electrical data signals from sources 12a and 12b to interconnected components, (not shown) and to at least one output 12c. Insulating layers 15 are disposed adjacent to or

interleaved with layers 11 to transmit optical data signal through optical fibers, or waveguides, 16 to optoelectronic and/or electronic integrated circuits (not shown), at least one optical data source 19, optical output terminal 20, optical circuit board 21, and/or back plane connector 22."

As can be seen from the foregoing, this portion of the specification contains no discussion of providing "a discrete micro substrate embedded within the composite". Nor is there any disclosure which suggests anything along those lines.

Solely for the sake of the present discussion, it may be acknowledged that the composite of Claim 1 is equivalent to the circuit board 10 of Updegrave, and includes embedded optical fibers. However, there is no disclosure in Updegrave regarding the use of a discrete microsubstrate, such as disclosed in the present application (which can be used because it is "more readily alignable than the optical processing means itself"). (See page 7 of the original application at lines 21-26.) Moreover, the structure of the circuit board 10 of Updegrave does not provide or constitute an embedded micro substrate corresponding to that of the invention, because the micro substrate of the present invention is embedded in the composite, and is therefore not a part of the composite as such. Stated otherwise, if one were to assume that the circuit board 10 of Updegrave

constitutes the microsubstrate, then it would be necessary to interpret the claim to recite that the micro substrate is embedded in itself, which is a logical disjuncture. Moreover, even if it were argued that a layer of the circuit board of Updegrove provides a micro substrate, it is not a separate or discrete part of the overall structure, and clearly cannot be manipulated to be "more readily alignable".

The micro substrate according to the invention, being separate from the composite as such, is (as described in the specification, and noted previously) "embedded at the time of composite manufacture". Clearly it is a separate component from the composite itself. This proposition is further evident from the disclosure at page 18, lines 2-4 which states that the substrate containing the optical processing elements would minimize movement during the composite cure process. It is further noted that the natural ply structure of the composite material would also make the substrate lie "flat", further improving alignment to the other structures. In summary, therefore, the disclosure is clear that the substrate is in fact a separate element, and both Claims 1 and 33 have been amended to clarify this point further.

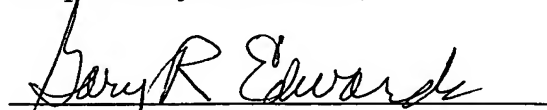
Insofar as Applicants have been able to determine, the Updegrove reference contains no other disclosure, with or without GB '479, that relates to the structure as recited in Claims 1 and 33 and as described above.

Finally, the Allen reference is cited only as disclosing the use of laser beams, which have wavelengths different from the optical signal transmission wavelengths, for machining a groove on the optical fiber. Accordingly, Allen contains no disclosure which remedies the omissions in both GB '479 and Updegrave, as discussed above.

If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 2101/50770).

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Gary R. Edwards", is written over a horizontal line.

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